CHAPTER 6

food and microorganisms: it takes two to tango

Hasanah Mohd Ghazali
Muhammad Shahrim Abdul Karim

Microorganisms are a very large and diverse group of live forms that range from those that are mostly invisible to the naked eye (for example bacteria and protozoa, and microscopic members of algae and fungi) to those that are quite readily visible. Visible microorganisms abound and they include fungi that are found on mouldy breads and rice, rotting fruits and vegetables etc. In fact, there are "macroscopic microorganisms" such as mushrooms (e.g. the highly prized truffle, shitake mushroom) which are classified as fungi. The tiny members are usually unicellular while their bigger members are multicellular. Although they are also ubiquitous members of Earth's community, they are by and large often misunderstood. Perhaps, it is because we hardly see them as they are. Thus, what we do not see, we generally ignore until and unless problems arise.

Our relationship with microorganisms is actually an intimate one as we even share our foods with them. Not only that, many organisms make us their residence and they can be found on our external surfaces such as our skin, and within us in our digestive tract. They make their homes in plants and animals, too. Symbiotic living between microorganisms and their hosts is well documented. However, living together means having to maintain the right balance. When this balance is upset, we begin to notice our invisible 'partners'. For example, when our skin 'tenants' become invasive, they may cause us to break out in pimples. Foods that we share can become spoiled as some microorganisms can act as spoilage agents and, if the food is consumed, we may get food poisoning.

Economic losses of food crops and animals can sometimes be blamed on them, too. Therefore, it is unfortunate that the often-quoted relationship with them is usually a negative one because many microorganisms are also pathogenic because they are capable of causing illnesses, infections, toxicity and poisoning in human, plants and animals, sometimes leading to death. However, not all that is bad is due to microorganisms. What we may regard as spoilage and waste must also be viewed as a mean to re-cycle nutrients and matter through our ecosystems and cleanse our Earth through degradation of unwanted materials which can subsequently be transformed into new materials. Without microorganisms, our world cannot renew itself.

The arts of brewing, bread making and cheese production began in ancient times and we have since engaged microorganisms as food, producers of our industrial products (e.g. alcohol, citric acid, monosodium glutamate etc.) and, of course, as agents of food transformation/preservation, otherwise known as food fermentation. Foods that we know are the results of microorganisms at work include tapai from glutinous rice and tapioca, ikan pekasam (fermented fish), tempeh, kimchi, soy sauce, apam, idli, tosei, yogurt, wine, nata de coco, tempoyak (fermented durian), and many more. Now that we know what they are capable of, we really must view microorganisms as our heritage and through different coloured glasses!

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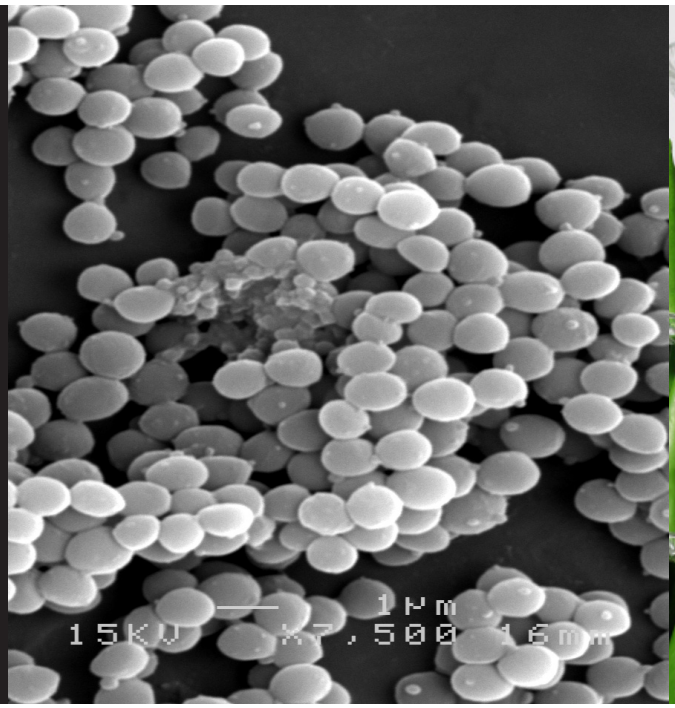
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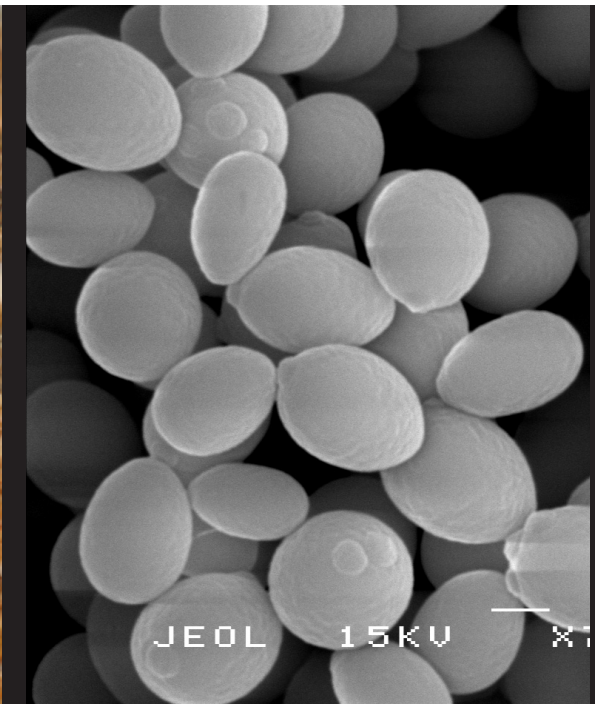

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